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REMARKS

The present response is intended to be fully responsive to all points of objection and/or rejection raised by the Examiner and is believed to place the application in condition for allowance. Applicants assert that the present invention is new, non-obvious and useful. Prompt consideration and allowance of the claims is respectfully requested.

Status of Claims

Claims 1, 2 and 4-27 are pending in the application, with claims 16-21 and 22-23 having been withdrawn as being directed to a non-elected species. Claims 1, 2, 4-15, 22, 26 and 27 have been rejected.

Claims 1, 7-11, 13 and 15 have been amended herein. Applicant respectfully asserts that the amendments to claims 1, 7-11, 13 and 15 add no new matter.

Claims 26-27 have been canceled herein without prejudice or disclaimer. In making this cancellation without prejudice, Applicant reserves all rights in this claim to file divisional and/or continuation patent applications.

Comments Regarding the Specification and Drawings

The specification at pages 6-7 and Figure 1 have been amended herein to add reference numerals 13a and 13b to refer to inclined tapering interior wall portion (13a) and a generally vertical inner wall portion (13b) of housing 13, in accordance with the amendments to independent claim 1. These amendments to the specification and drawings do not constitute new matter, as the "inclined second-end wall portion" now designated as 13a and the "generally vertical inner wall portion" now designated as 13b, as referred to in amended independent claim 1, are shown in the drawings, especially in the cross section in Figure 1, but simply not designated by reference numerals.

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CLAIM REJECTIONS

35 U.S.C. § 112 Rejections

In the Office Action, the Examiner rejected claim 27 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. In response, Applicants have canceled claim 27, thus rendering this rejection moot.

35 U.S.C. § 103 Rejections

In the Office Action, the Examiner rejected Claims 1, 2, 4, 5, 7-15, 22, 26 and 27 under 35 U.S.C. § 103(a) as being unpatentable over Smith (U.S. Patent No. 1,356,566) in view of Oppenheimer (U.S. Patent No. 2,687,546) and Batyr (U.S. Patent No. 3,025,075). Applicants respectfully traverse the rejections in view of the amendments to the claims and the remarks that follow.

Applicant notes that claim 1 has been amended herein to include additional features of the embodiment of Figures 1 and 2. More specifically, amended independent claim 1 recites a housing including:

a tapering second end, wherein the second end and a generally vertical inner wall portion of the housing define a cavity in which the roller is located, the second end comprising a second-end wall portion which is inclined relatively to the generally vertical inner wall portion of the housing; and

a recessed circular region, provided in the inclined second-end wall portion, for accommodating the support rollers, the recessed circular region being spaced apart inwardly from, and having a substantially smaller diameter than, the generally vertical inner wall portion of the housing.

None of the cited documents show either of these features.

In relation to the first of these distinguishing features, Smith, Oppenheimer and Batyr all disclose arrangements in which the cavities are substantially rectangular in cross section. That is, the upper surface of each disclosed cavity (which can be regarded as relating to the "second end" of the cavity of claim 1) is horizontal. The tapered arrangement of the present invention can provide a less bulky housing which, consequently, may be more aesthetically

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pleasing and require less material to manufacture, while still adequately distributing vertical forces.

Applicant notes that, in Smith and Oppenheimer, the vertical side walls and the perpendicular, horizontal, end walls of the cavities are both used to support and retain the roller bearings (designated 8 in Smith and 16 in Oppenheimer). Consequently, Applicant submits that, without hindsight, it would not have been obvious to one of ordinary skill in the art to change the angular relationship of these walls, since to do so would appear to adversely affect the support of the roller bearings by the walls.

Batyr teaches cavities which are formed by elongate, rectangular cross-section, channel members 19, which in combination with transverse brace channels 23 form a rigid brace structure which supports and underlies the unit 10. Applicant submits that it would be counterintuitive and pointless to provide a tapered upper section in the channel members 19, and that it therefore cannot be considered that such a structural change would have been obvious from Batyr. Furthermore, even if contemplated (which Applicant submits would not have been an obvious thing to do), consideration of, for example, Figure 4 of Batyr reveals that such a variation does not appear practicable, since such a change would lead to interference between the elements shown in Figure 4 and a lack of functionality of the apparatus.

In relation to the second of the distinguishing features set out above, none of the cited references discloses "a recessed circular region provided in the [inclined] second end wall portion, for accommodating the support rollers and/or the annular member, the recessed circular region being spaced apart inwardly from, and having a substantially smaller diameter than, the generally vertical inner wall portion of the housing", as required by amended independent claim 1.

Smith and Batyr disclose no recessed circular region (in an end wall of the cavity) whatsoever.

The text of Oppenheimer discloses only "roller (ball) bearings 16 retained in the housing by ring 17". The Examiner asserts that Figures 2 and 3 of Oppenheimer show an (unnumbered) race way in housing 10 which constitutes a recessed circular region. Assuming this assertion to be correct, Oppenheimer still does not disclose or suggest a "recessed

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circular region ... spaced apart inwardly from, and having a substantially smaller diameter than, the generally vertical inner wall portion of the housing”, as required by amended independent claim 1. Oppenheimer teaches use of the cylindrical side wall as the outer support for the roller (ball) bearings, which is a teaching directly against providing the recessed circular region with a substantially smaller diameter than the generally vertical inner wall portion of the housing, which equates to having the support bearings substantially closer to the axis of the cavity.

In addition, Figures 2 and 3 of Oppenheimer (which are the only basis in this document for disclosure of the recessed circular region) illustrate that the roller bearings engage the side wall of the cavity at least as far down the roller bearing surface as the horizontal circumference of the roller bearings. Applicant submits that this is a further teaching directly against the provision of the recessed circular region, as set out in amended independent claim 1, since it would be impracticable to provide a recessed circular region in an inclined end wall of a housing which would provide this much contact surface for contact with the roller bearings. (In the event that this could be achieved, it would be incompatible with other features of amended independent claim 1.)

Applicant therefore submits that this recited feature of claim 1 is not disclosed or suggested in, and would not have been obvious from, the cited references.

Applicant additionally notes that the Examiner previously dismissed the limitation that “the diameter of the recessed circular region is approximately half the size of the diameter of the cavity” as being a mere change in proportions, and also rejected claim 27 which related to this feature as not being supported by the original disclosure. Applicant has canceled claim 27, and has recast the reference to the relationship between the diameter of the recessed circular region and the rest of the housing, which is now included in amended independent claim 1. The recast relationship is supported in the original disclosure, see for example page 7, line 35 - page 8, line 1 of the published PCT specification. Furthermore, Applicant submits that the limitation (as recast) relates to a change in physical structure of the claimed device rather than merely an arbitrary change in proportions which makes no significant difference. In particular, in addition to allowing the support bearings to contact the second end of the housing at a region which is spaced considerably inwardly from the

cylindrical side wall of the housing, as best shown in Figures 1 and 2, and thereby allowing more flexibility in the choice of housing shape (which allows more attractive and economical housing shapes to be selected), this new structure allows freedom to arrange the support bearings so that load forces between the main bearing and the housing have greater vertical and lesser horizontal components, which can be advantageous.

A further feature of amended claim 1 is:

“at least one bearing means comprising an annular member with a plurality of openings in which support rollers are located for contacting a surface part of the or each main roller, the surface part being a surface part of the roller oriented towards the second end of the housing, and wherein at least some of the support rollers are seated in the openings so that parts of their surfaces protrude further towards the first end of the housing than does the annular member in which they are located”

The Examiner has identified the “anti-friction thrust bearing ring (22)” in Batyr as disclosing this feature in isolation and has asserted that it would have been obvious to substitute the bearing arrangement for the bearing arrangement in Smith. However, Applicant respectfully submits that such a substitution would not be obvious based on consideration of Smith in view of Batyr. The support (ball) bearings in Smith are retained against the substantially vertical and cylindrical inner wall (at least down to their horizontal circumferences, as illustrated in Figures 2 and 3), and the U-shaped retainer of Smith is consequently structured to allow this contact by supporting the support bearings mainly from below, and not extending outwardly beyond the outermost (with respect to the socket 4) parts of the support bearings.

By contrast, the anti-friction thrust bearing ring of Batyr clearly and necessarily extends outwardly beyond the outermost peripheral parts of the support bearings it retains. Applicant, therefore, respectfully submits that it would be impossible to substitute the anti-friction thrust bearing ring of Batyr into the apparatus of Smith, since doing so would fatally interfere with the primary function of the support bearings in Smith.

In view of all the above arguments, Applicant submits that amended independent claim 1 includes features not disclosed in or suggested by any of the cited references, and consequently cannot be considered to be obvious over any one of the cited documents or any

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combination thereof. Further, Applicant submits that the claimed combination of features cannot be considered obvious over any combination of the cited references. Accordingly, amended independent claim 1 is allowable over the cited Smith, Oppenheimer and Batyr references. Dependent claims 2, 4-15, 22, 26 and 27 incorporate all the limitations of amended independent claim 1, such that those claims are allowable for the same reasons that amended independent claim 1 is allowable. Thus, Applicants respectfully request that this rejection be withdrawn.

The Examiner also rejected Claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of Oppenheimer and Batyr as applied to claims above, and further in view of Fierling (U.S. Patent No. 6,200,038). Applicants respectfully traverse the rejections in view of the amendments to the claims and the remarks that follow.

Amended independent claim 1 is allowable for the reasons discussed above. Dependent claim 6 incorporates all the limitations of amended independent claim 1, and Fierling does not solve the deficiencies of the cited Smith, Oppenheimer and Batyr references. Thus, claim 6 is allowable for the same reasons that amended independent claim 1 is allowable. Thus, Applicants respectfully request that this rejection be withdrawn.

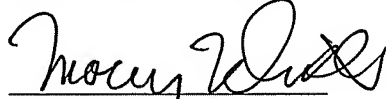
In view of the foregoing amendments and remarks, the pending claims are allowable. Their favorable reconsideration and allowance is respectfully requested.

Should the Examiner have any question or comment as to the form, content or entry of this Amendment, the Examiner is requested to contact the undersigned at the telephone number below. Similarly, if there are any further issues yet to be resolved to advance the prosecution of this application to issue, the Examiner is requested to telephone the undersigned counsel.

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Please charge any fees associated with this paper to deposit account No. 50-3355.

Respectfully submitted,



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Dated: February 20, 2009

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